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NOTES ON GEOGRAPHIC DISTRIBUTION

Mammalia, Chiroptera, Molossidae, *Molossops temminckii* (Burmeister, 1854), and Vespertilionidae, *Eptesicus furinalis* (d'Orbigny and Gervais, 1847): New locality record and distribution extension in Córdoba Province, Argentina

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ABSTRACT: During a field trip to the Ramsar site "Bañados del Río Dulce y Laguna Mar Chiquita" we captured three specimens of *Molossops temminckii* (Burmeister, 1854) and two of *Eptesicus furinalis* (d'Orbigny and Gervais, 1847). *Molossops temminckii* has a wide distribution in Argentina, but this new record represents the second mention of the species for the Cordoba Province after 13 years. The specimens of *E. furinalis* represent the tenth record for Cordoba and the second for Río Primero Department. This new information reflects the scarcity of systematic studies on bats in Cordoba Province.

As a part of a major project, oriented to determine the diversity of bats in Córdoba Province, Argentina, a survey was conducted during the month of May 2008, in the Ramsar site "Bañados de Río Dulce and Laguna Mar Chiquita", considered as one of the places with highest biodiversity in the province. The collecting locality is "10 km al noreste de La Para (30°50'54.40" S, 62°54'42.60" W), Departamento Río Primero", a town located on the Provincial Road 17, approximately 3 km from the Laguna Mar Chiquita, south to the vast system of marshes of the Laguna Mar Chiquita and Bañados del Río Dulce (Figure 1). The locality is near to the rural school and surrounded by fields used mainly for livestock.

The specimens were captured with mist nets, 12 m long, placed inside and outside a secondary forest of *Aspidosperma quebracho-blanco* (Family Apocynaceae), halophytic vegetation and shrubs, in proximity to a stream and to a water hole where animals drink. Six mist nets were opened two nights from 19:00 h to 1:00 h (15th and 16th May, 2008); the nights were relatively cloudy, full moon, and with strong winds.

The specimens were identified following Barquez *et al.* (1993), and external measurements followed Díaz *et al.* (1998): total length (ToL), tail length (TL), ear length (EL), hindfoot length (HFL), and forearm length (FA). The weight (W) was taken in grams using a Pesola spring scale. Cranial measurements were taken as described by Barquez *et al.* (1999): greatest length of skull (GLS), condylobasal length (CBL), least interorbital breadth (LIB), zygomatic breadth (ZB), postorbital constriction (PC), breadth of braincase (BB), length of maxillary toothrow (LMxT), palatal length (PL), mastoid breadth (MB), length of mandibular toothrow (LMdT), length of mandible (LM), width across upper canines (CC), width across upper molars (MM). The eco-regions follow to Burkart *et al.* (1999).

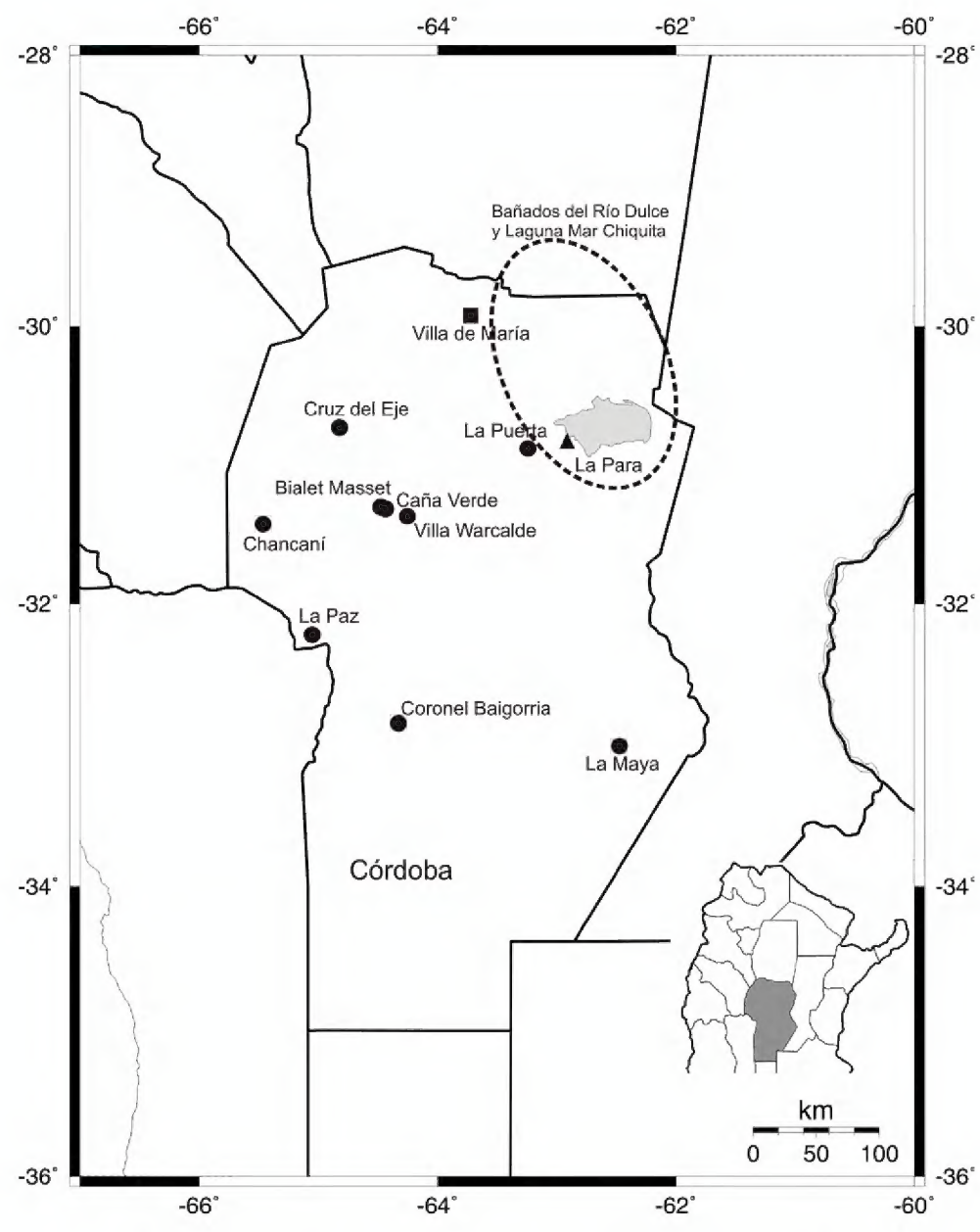

FIGURE 1. Localities where *Molossops temminckii* (square) and *Eptesicus furinalis* (circles) have been recorded in Cordoba Province, Argentina, with the new locality (triangle) in "Bañados del Río Dulce and Laguna Mar Chiquita" (dotted line).

The collected specimens were numbered in the catalogue of Maria Cecilia Castilla (MCC) and will be deposited in the Museo de Zoología de la Universidad Nacional de Cordoba, Argentina. They were prepared as voucher specimens following the protocol described by Díaz *et al.* (1998), including skins, skulls and skeletons (Figure 2), as well as tissues that were stored in alcohol for molecular studies.

Two *Molossops temminckii* (Burmeister, 1854) were captured and released on May 15th, 2008, at 22:00 h, in different mist nets placed, one in a secondary forest, and another placed between a scrub and dirt road. A third specimen was captured on May 16th, 2008 at 1:00 AM in an open scrub close to a dam. This specimen was collected and numbered into the catalogue as MCC 03. External measurements of the three specimens are as follow: ToL: 68, 77, 78; TL: 25, 22, 27; HFL: 5, 8, 4; EL: 10, 12, 10; FA: 31, 33, 32.5; W: 6. Cranial measurements for MCC 03: GLS: 14.20; CBL: 14.32; LIB: 6.22; ZB: 9.46; PC: 4.12; BB: 7.26; LMxT: 5.80; PL: 6.16; MB: 9.62; LMdT: 6.28; LM: 11.08; CC: 4.30; MM: 6.88.

Molossops temminckii is the smallest molossid registered in Argentina. Its distribution is restricted to South America and ranges from Venezuela, Colombia and Guyana, extending to the southwest through Ecuador, Peru, Bolivia, Paraguay, Brazil, Uruguay, and northern and central Argentina (Eger 2008). In Argentina, it has been registered in several eco-regions as Fields and Weedlands, Dry Chaco, Humid Chaco, Delta and Islands of the Parana River, Espinal, and Yungas forests (Barquez 2006). Most of the records are concentrated in the north part of the country, and those from Buenos Aires and Chubut provinces are the southernmost known records (Barquez *et al.* 1999). It is remarkable that in the central region of Argentina, especially in the central-east, there is a gap of information.

According to Barquez and Ojeda (1992), *M. temminckii* is one of the most common species of bat in the Chaco region, but in Cordoba Province, where the Chaco vegetation covers almost all the provincial surface, the only known specimen (M33, deposited in the Colección de Mamíferos de la Universidad Nacional de Río Cuarto, Córdoba, Argentina) was collected in 1995. Barquez *et al.* (1999) misplaced the locality where this specimen was collected, reporting Villa María, Colón Department (31°30' S, 64°00' W), instead of Villa de María, Río Seco Department (29°55' S, 63°43' W) (Figure 1). Our record, therefore, extends the distribution of *M. temminckii* in Cordoba Province 130 km to southeast, in addition to being the second record for the province and the first for the Rio Primero Department.

Two specimens of *Eptesicus furinalis* (d'Orbigny and Gervais 1847) were collected (MCC01 and MCC02), one specimen on May 15th 2008, at 19:00 h, in a mist net placed next to a stream near to a secondary forest, and the second specimen on May 16th, 2008 at 1:00 AM in an open shrub area. External measurements: ToL: 95, 113; TL: 35, 40; HFL: 8, 8; EL: 14, 15; FA: 42.5, 41; W: 14, 16. Cranial measurements: GLS: 15.90, 16.00; CBL: 15.36, 15.40; LIB: 5.72, 6.18; ZB: 11.14, 11.28; PC: 4.87, 4.06; BB: 7.76, 7.86; LMxT: 4.46, 4.58; PL: 6.10, 6.22; MB: 7.96, 8.30; LMdT: 7.10, 6.06; LM: 13.16, 11.14; CC: 5.40, 5.26; MM: 7.26, 7.12.

Eptesicus furinalis is widely distributed from Mexico to Argentina (Davis and Gardner 2008). In Argentina, the

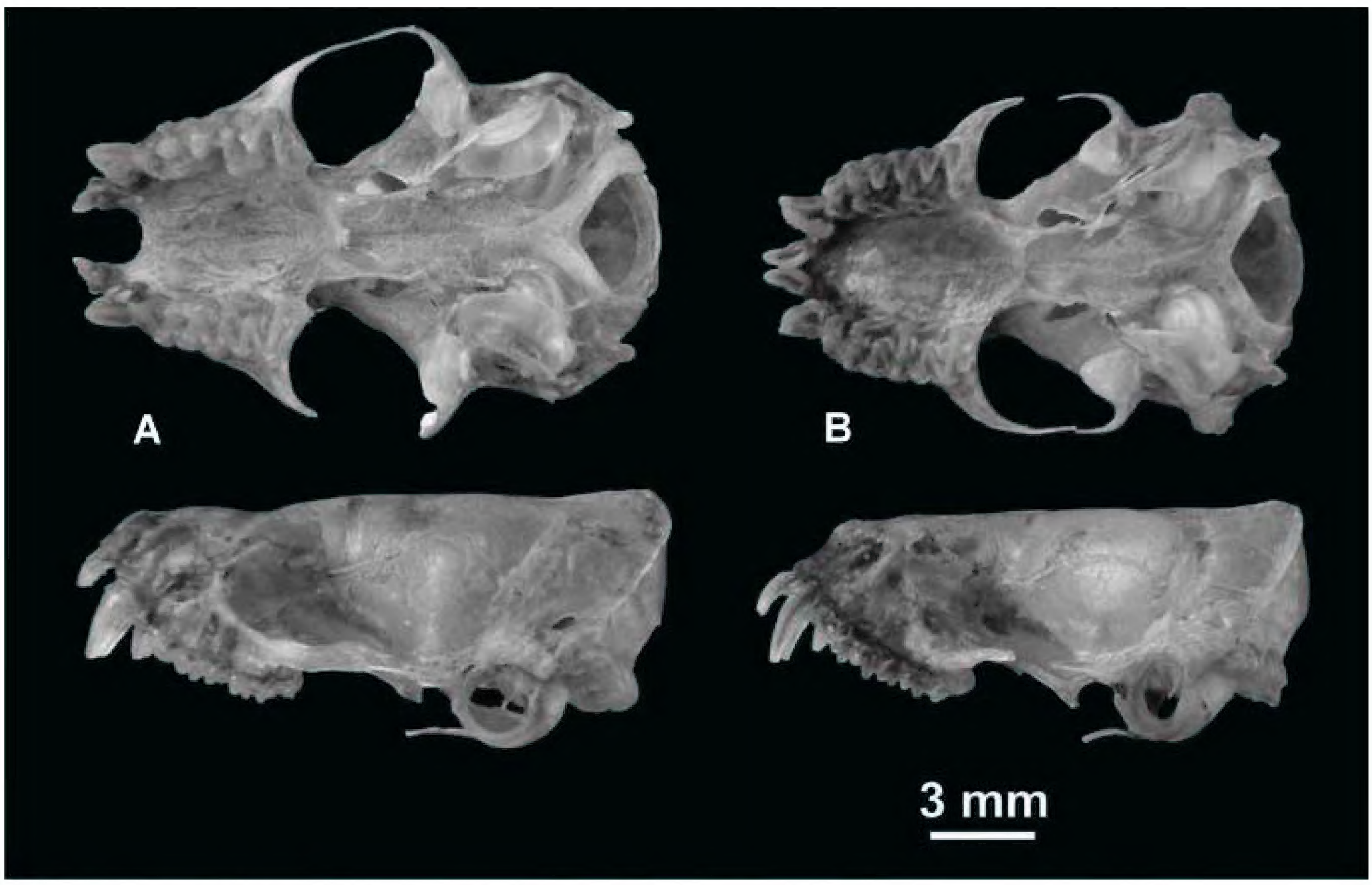

Figure 2. Basal and lateral views of skulls of A, *E. furinalis* (MCC02); and B, *M. temminckii* (MCC03). Scale: 3 mm.

reports include several eco-regions (Fields and Weedlands, Dry Chaco, Humid Chaco, Delta and Islands of the Parana River, Monte of Plains and Steppes, Monte of Mountains and Isolated Valleys, Espinal, Pampa, Puna, Paranaense forests, and Yungas forests), with numerous localities in the northern and central areas of the country (Barquez *et al.* 1999). In Cordoba Province, there are nine previous records for *E. furinalis* distributed in eight departments: Cruz del Eje, Marcos Juarez, Punilla, Río Cuarto, Pocho, Capital, Río Primero and San Javier (Gutiérrez 1996, Barquez *et al.* 1999) (Figure 1). Our captures represent the tenth record for Cordoba Province, and the second for Río Primero Department.

The few records of *M. temminckii* and *E. furinalis* in Cordoba Province may be due to the lack of systematic surveys and/or because to the difficulty of their capture with mist nets. These aerial insectivorous bats species seem to be able to detect and avoid mist nets or fly at heights that make their capture difficult (Willig 1983, Kalko and Handley 2001, Rydell *et al.* 2002).

The information presented in this paper reflects the lack of systematic studies on bats in the province of Cordoba, since these two species were recorded in the province more than 10 years ago. Therefore, we propose the necessity for surveys sustained over time and incorporating combined sampling techniques (*e.g.*, ground-level and elevated mist nets, active search for roosts, Bat Detector) in order to acquire a deeper understanding of the diversity, distribution and ecology of a group as important and beneficial as the bats.

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